



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

Central Regional Office • 8 New Bond Street, Worcester MA 01606 • 508-792-7650

Charles D. Baker  
Governor

Karyn E. Polito  
Lieutenant Governor

Matthew A. Beaton  
Secretary

Martin Suuberg  
Commissioner

December 31, 2015

Ms. Tracy Markham  
Southbridge Recycling and Disposal Park, Inc.  
165 Barefoot Road  
Southbridge, MA 01550

**RE: SOUTHBRIDGE**  
Transmittal No.: X264977  
Application No.: CE-15-010  
Class: **OP**  
FMF No.: 39743  
**AIR QUALITY PLAN APPROVAL**

Dear Ms. Markham:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Air and Waste, has reviewed Southbridge Recycling & Disposal Park, Inc.'s ("SRDP" or the "Permittee") Non-major Comprehensive Plan Application ("Application") listed above. This Application concerns the operation of the landfill gas collection and treatment system at the Southbridge Landfill located at 165 Barefoot Road in Southbridge, Massachusetts ("Facility"). The Application bears the seal and signature of David E. Adams, Massachusetts Registered Professional Engineer Number 46417.

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control" regulations adopted by MassDEP pursuant to the authority granted by M.G.L. c.111, §§ 142 A-O, c. 21C, §§ 4 and 6, and c. 21E, § 6. MassDEP's review of the Application has been limited to air pollution control regulation compliance and does not relieve the Permittee of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Permittee must comply in order for the Facility to be operated in compliance with this Plan Approval.

## **1. DESCRIPTION OF FACILITY AND APPLICATION**

### **A. HISTORY**

The Facility consists of the Southbridge Sanitary Landfill (“Landfill”) and a construction and demolition waste processing facility that is not operated by the Permittee. The Facility is located at 165 Barefoot Road, Southbridge, Massachusetts. Upon completion, the Landfill will ultimately cover approximately 53 acres within an approximately 146.4 acre parcel of land. Since 1981, MassDEP has issued multiple solid waste permits approving construction and operation of the Landfill.

The Facility was originally approved to landfill only municipal solid waste (“MSW”), but later cells were approved for non-MSW Construction and Demolition (“C&D”) waste and recycling facility residuals. The Landfill consists of seven phases. Phases I - VI are considered the ‘existing landfill’ and have been closed and capped. Waste placement began in Phase VII, cell 7.1A in November 2002. Additional Phase VII cells have been constructed and operated. The Facility is currently placing waste in cell 7.4. The Facility received an Authorization to Construct for cell 7.4 Stage 1 on May 7, 2015.

As a result of improved gas collection from the capping, on February 6, 2006, MassDEP issued Plan Approval Transmittal Number (“Tr #”) W068501 for the installation of a landfill gas treatment system, two engine generator sets, and an open flare to burn the treated landfill gas. MassDEP amended Plan Approval Tr # W068501 to authorize the installation of a single engine instead of two engines on December 3, 2010. On July 26, 2012, MassDEP amended Plan Approval Tr # W068501 again to clarify the requirements for hydrogen sulfide removal in the landfill gas treatment system. On December 5, 2014, MassDEP issued Plan Approval Tr # X262787 for an enclosed flare to provide increased capacity to burn landfill gas. On May 25, 2015, MassDEP received the present Application Tr # X264977 for the operation of landfill gas collection and control system.

As of June 9, 2002, the Facility became subject to the federal Landfill New Source Performance Standards (“NSPS”) 40 CFR 60 Subpart WWW when it exceeded the design capacity threshold of 2.5 million cubic meters and 2.5 million megagrams. The Permittee performs an annual review to determine if the full NSPS requirements are applicable to the Landfill. As of the date of this Plan Approval, the annual review has demonstrated that Non-Methane Organic Compounds (“NMOC”) have not yet reached the 50 mega-gram (“Mg”) per year threshold which would trigger the additional NSPS requirements. Because the Facility is subject to NSPS, the Permittee submitted a Title V Air Quality Operating Permit Application Tr # X250038 pursuant to 310 CMR 7.00 App. C to MassDEP on March 13, 2012. This application is currently on hold as several plan approval applications currently are under review that will be incorporated in the final Operating Permit.

### **B. FACILITY DESCRIPTION**

The deposited waste in the landfill naturally breaks down and, in the process, generates landfill gas (“LFG”). The LFG consists of approximately 40-50 percent (“%”) methane, with a balance of mainly carbon dioxide, along with trace gases that include oxygen, nitrogen, hydrogen sulfide, and organic compounds. The LFG is collected in various wells throughout the landfill and is piped to a common header leading to the LFG treatment system.

The LFG treatment system components include interconnections with the existing engine set and two flares; a primary knockout box to remove condensate from the LFG; a vacuum blower/compressor to extract LFG from the LFG Collection System; monitoring equipment; a filter to remove Particulate Matter (“PM”); and a sulfur removal system (Sulfa Treat) to remove elevated concentrations of hydrogen sulfide contained in the LFG.

The Permittee currently uses four boxes of Sulfa Treat media to treat the LFG. The boxes are set up in parallel pairs which allow the LFG to flow through the media in a variety of configurations. The connection piping system contains flow control valves to regulate the flow of LFG through the different boxes for optimum treatment. The Sulfa Treat media is composed of loose pieces of clay-based substrate coated with iron oxide; the iron oxide reacts with hydrogen sulfide in the LFG to form iron sulfide. Removal of the hydrogen sulfide reduces sulfur dioxide emissions from the downstream combustion of the LFG. The Sulfa Treat media is replaced when it is no longer able to reduce the hydrogen sulfide to the required level of 200 parts per million as a calendar monthly average.

The treated LFG then flows to the following LFG combustion/destruction devices:

1. A Caterpillar Model G3520C engine generator set, installed June 2011, which burns a portion of the LFG and generates electricity for use in the Facility and for sale to the electric grid. This engine generator set is designated as Emission Unit (“EU”) 1 and is rated at 1,600 kilowatts.
2. A Parnel enclosed flare, designated as EU 2, burns the remainder of the LFG that is not burned in the engine. The enclosed flare, the preferred control device after the engine, is designed to have a minimum retention time of 0.7 seconds at 1625 degrees Fahrenheit (°F), while operating at the maximum design flow rate of 2200 standard cubic feet per minute (scfm) of LFG.
3. An open flare, designated as EU 3, burns LFG only when the enclosed flare is temporarily malfunctioning, or when the flow rate of LFG to the enclosed flare falls below its lower operating limit of 370 scfm.

The Facility also has three existing emergency engines, designated as Emission Units 4, 5 and 6, that are compression ignition stationary reciprocating internal combustion engines. They are fired by diesel fuel and were installed in 2013, 2004, and 2014 respectively.

### **C. PROJECT DESCRIPTION**

This Plan Approval is for operation of the entire LFG Collection and Treatment System. The system consists of the expansion and modification of the existing gas collection system to include open and closed sections of the Landfill, the connection to the leachate collection system, and the LFG Treatment System. The gas collection system will be expanded as areas of waste are filled in Phase VII. The gas collection system consists of vertical wells and horizontal collectors. The Facility will install gas collection wells in Phase VII within 12 – 18 months of initial waste placement.

The Facility is currently approved to accept up to 405,600 tons per year (“tpy”) of construction and demolition debris and municipal solid waste (“MSW”). The decomposition of this amount of waste is estimated, using the USEPA’s Landfill Gas Emissions Model, to generate a maximum landfill gas collection rate of approximately 2,200 scfm of landfill gas. The LFG consists predominantly of methane

(CH<sub>4</sub>) and carbon dioxide (CO<sub>2</sub>). Additional constituents of LFG include Non-Methane Organic Compounds (NMOC), Hydrogen Sulfide (H<sub>2</sub>S), Volatile Organic Compounds (VOC), Hazardous Air Pollutants (HAP), and Halogenated Organic Compounds (HOC).

In addition, this Plan Approval updates the permitted LFG flow rates to the Caterpillar Model G3520C engine generator set (EU1), the enclosed flare (EU2), and the open flare (EU3) to design specifications and adjusts the emission limits accordingly.

#### **D. APPLICABLE REQUIREMENTS**

1. Federal Requirements: The Facility is subject to the following requirements:
  - a. 40 CFR 60 Subpart JJJJ (and 40 CFR 63 Subpart ZZZZ), Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (EU 1);
  - b. 40 CFR 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (and 40 CFR 63 Subpart ZZZZ) (EU 4, EU 6);
  - c. 40 CFR 63 Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (EU 4, EU 5, and EU 6); and
  - d. 40 CFR 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills (EU7).
2. State Requirements: The Facility is subject to 310 CMR 7.02(8): Best Available Control Technology ("BACT"). MassDEP has determined that BACT for this Plan Approval is the 85% collection of the LFG, 0.60 grams per brake horsepower-hour (g/bhp-hr) for Nitrogen Oxides ("NOx") combustion, reduction of H<sub>2</sub>S to 200 parts per million dry volume ("ppmvd"), and a minimum destruction efficiency of 98 percent by weight of total Non-Methane Organic Compounds ("NMOC") contained in the LFG.

**This Plan Approval, Transmittal No. X264977, supersedes and replaces Air Quality Plan Approvals Transmittal Nos. X262787, W068501, and its amendments Nos. W068501-A1 and W068501-A2 in their entirety.** The underlying application materials contained within Transmittal Nos. X262787 and W068501 and its amendments remain applicable where not superseded by this Plan Approval.

#### **3. EMISSION UNIT IDENTIFICATION**

Each Emission Unit ("EU") identified in Table 1 is subject to and regulated by this Plan Approval:

<b>Table 1</b>			
<b>EU</b>	<b>Description</b>	<b>Design Capacity</b>	<b>Pollution Control Device (PCD)</b>
1	Caterpillar Engine G3520C with SR4B Generator (low NOx); installed June 1, 2011	1,600 kW 625 scfm <sup>1</sup>	SulfaTreat or Equivalent
2	Enclosed Flare: Parnel Biogas Inc. Model No.: Skid Mounted (9 ft diameter by 45 ft height)	2,200 scfm <sup>1</sup>	SulfaTreat or Equivalent
3	Open Flare: Landfill Gas Specialties, L.L.C. Model No.: CF825I6	1,350 scfm <sup>1</sup>	SulfaTreat or Equivalent
4	Emergency Generator No. 1 MultiQuip Model No.: DCA85USJ (installed 2013)	75 kW 100 hp	None
5	Emergency Generator No. 2 Olympian Model No.: D40P1 (installed 2004)	40 kW 54 hp	None
6	Emergency Generator No. 3 Caterpillar Model No.: XQ300 (installed 2014)	300 kW 400 hp	None
7	Landfill (including uncollected LFG emissions)	> 2.5 million cubic meters of solid waste volume; Maximum landfill gas generation rate of 2,200 scfm <sup>1</sup>	Gas Collection & Treatment System

**Table 1 Notes:**

1. Landfill gas flow in units of standard cubic feet per minute is based on 50 percent methane.

**Table 1 Key:**

EU = Emission Unit  
ft = feet  
hp = horsepower  
kW = Kilowatts

PCD = Pollution Control Device  
scfm = Standard Cubic Feet per Minute  
> = greater than

#### **4. APPLICABLE REQUIREMENTS**

##### **A. OPERATIONAL, PRODUCTION and EMISSION LIMITS**

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2:

Table 2						
EU	Operational / Production Limit	Air Contaminant	Emission Limit			
			g/bhp-hr	lb/MMBtu	lb/hr	TPY
1	625 scfm <sup>1</sup> 18.84 MMBtu/hr	PM/PM <sub>10</sub> /PM <sub>2.5</sub>	0.24	0.07	1.2	5.2
		NO <sub>x</sub>	0.6	0.16	3.0	12.9
		CO	3.0	0.78	14.8	64.7
		SO <sub>2</sub> <sup>2</sup>	0.25	0.07	1.2	5.3
		NMOC	0.55	0.14	2.7	11.9
			The engine shall reduce NMOC emissions by 98 percent by weight, or reduce the stack NMOC concentration to 20 parts per million as hexane by volume, dry basis at 3 percent oxygen.			
2	2,200 scfm <sup>1</sup> 66.3 MMBtu/hr	PM/PM <sub>10</sub> /PM <sub>2.5</sub>		0.017	1.1	5
		NO <sub>x</sub>		0.06	4.0	17.4
		CO		0.20	13.3	58.1
		SO <sub>2</sub> <sup>2</sup>		0.07	4.5	19.6
		NMOC		0.012	0.8	3.5
			The enclosed flare shall reduce NMOC emissions by 98 percent by weight, or reduce the stack NMOC concentration to 20 parts per million as hexane by volume, dry basis at 3 percent oxygen.			
3	1350 scfm <sup>1</sup> 40.7 MMBtu/hr	PM/PM <sub>10</sub> /PM <sub>2.5</sub>		0.017	0.7	3
		NO <sub>x</sub>		0.068	2.8	12.1
		CO		0.37	15.1	66
		SO <sub>2</sub> <sup>2</sup>		0.07	2.74	12.0
		NMOC		0.012	0.5	2.1
		VOC		0.012	0.5	2.1
1, 2, and 3		PM/PM <sub>10</sub> /PM <sub>2.5</sub>		10.1 TPY <sup>3</sup>		
		NO <sub>x</sub>		30.4 TPY <sup>3</sup>		
		CO		123.0 TPY <sup>3</sup>		
		SO <sub>2</sub> <sup>2</sup>		24.9 TPY <sup>3</sup>		
		NMOC		15.3 TPY <sup>3</sup>		

	Table 2					
EU	Operational / Production Limit	Air Contaminant	Emission Limit			
			g/bhp-hr	lb/MMBtu	lb/hr	TPY
		VOC		15.3 TPY <sup>3</sup>		
1, 2, and 3		Opacity		Stack emissions shall not exceed 0% opacity (no visible emissions) with the exception of up to 10% opacity during five (5) minutes of startup.		
7		CH <sub>4</sub>	< 500 ppmvd <sup>4</sup>			

**Table 2 Notes**

1. Landfill gas flow in units of standard cubic feet per minute is based on 50 percent methane.
2. The H<sub>2</sub>S concentration limit of 200 ppmv shall be determined as a calendar monthly average of 200 ppmv with a maximum daily limit of 500 ppmv.
3. Tons per year mean tons per consecutive 12-month rolling period.
4. The methane concentration shall be less than 500 parts per million dry volume above background concentrations at the surface of the landfill.

**Table 2 Key:**

EU = Emission Unit

CH<sub>4</sub> = Methane

CO = Carbon Monoxide

g/bhp-hr = grams per brake horse power hour

H<sub>2</sub>S = hydrogen sulfide

lb/hr = Pounds per Hour

lb/MMBtu = Pounds per million British thermal units

MMBtu/hr = Million British thermal units per hour

NMOC = Non Methane Organic Compounds

NO<sub>x</sub> = Nitrogen Oxides

PM = Total Particulate Matter filterable and condensable

PM<sub>10</sub> = Particulate Matter less than or equal to 10 microns in diameter filterable and condensable

PM<sub>2.5</sub> = Particulate Matter less than or equal to 2.5 microns in diameter filterable and condensable

ppmv = parts per million volume

ppmvd = parts per million dry volume

scfm = standard cubic feet per minute

SO<sub>2</sub> = Sulfur Dioxide

TPY = tons per consecutive 12-month period

VOC = Volatile Organic Compounds

% = percent

< = less than

**B. COMPLIANCE DEMONSTRATION**

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5:

<b>Table 3</b>	
<b>EU</b>	<b>Monitoring and Testing Requirements</b>
1	1. The Permittee shall continuously monitor the engine for run time and kilowatt-hours produced.
1	2. Within 90 days of the date of issuance of this Plan Approval, the Permittee shall perform a performance test to demonstrate compliance with all of the emission limits listed in Table 2. The performance test will include, but not be limited to, testing different operating scenarios; determining the NOx/CO optimization/minimization; the Charge Density: the density factor of air/fuel mixture that shall be employed on the engine; the heat content of the LFG; and any parametric monitoring correlation(s). These findings will be incorporated as needed into this Plan Approval.
	3. Within 120 days of the time that a replacement or refurbished engine is installed and commences burning landfill gas at the Facility, the Permittee shall perform a compliance test to demonstrate compliance with all of the emission limits listed in Table 2.
1	4. After the initial performance test described in Table 3, Item 2 or Item 3 above, the Permittee shall conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, to demonstrate compliance with the emission limits in Table 2.
1	5. Pursuant to 40 CFR §60.4244, the Permittee shall: <ul style="list-style-type: none"> <li>a. conduct each performance test within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in §60.8 and under the specific conditions that are specified by Table 2 of 40 CFR Part 60 Subpart JJJJ;</li> <li>b. shall not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in 40 CFR §60.8(c); and</li> <li>c. conduct three separate test runs for each performance test required in 40 CFR §60.4244, as specified in §60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour.</li> </ul>
1	6. The Permittee shall install, calibrate, operate, and maintain, in accordance with manufacturer's specifications and guidelines, a temperature monitoring system (TMS) on the engine to monitor every hour and permanently record the engine exhaust temperature. The Permittee shall maintain the exhaust temperature at or above 850 °F, except during startup and shutdown. The Permittee shall place the TMS in a location that provides representative measurements of the engine exhaust temperature, is free from any interference that may affect the accuracy of the measurement, and is easily accessible for maintenance.
1	7. The Permittee shall calibrate annually the TMS measurement components and permanent data-recording devices in accordance with manufacturer's specifications.
1	8. Within 45 days of the date of issuance of this Plan Approval, the Permittee shall propose parametric monitoring including, but not limited to, temperature and charge density levels, to MassDEP for written approval to demonstrate the engine is maintaining good combustion and the emission limits in Table 2 of this Plan Approval. The correlation of the proposed parametric monitoring parameter(s) to the emission limits and engine operation shall be confirmed during compliance testing.
1	9. The Permittee shall ensure that EU 1 has appropriately placed sample ports which can accommodate the emission testing requirements contained in 40 CFR Part 60 Appendix A.



<b>Table 3</b>	
<b>EU</b>	<b>Monitoring and Testing Requirements</b>
2	10. Subsequent to the initial emission testing performed in September 2015, the Permittee shall conduct performance testing on the enclosed flare every 3 years to demonstrate compliance with all of the emission limits in Table 2. This testing may occur at the same time that EU 1 is being tested.
2	11. The Permittee, as described in 40 CFR §60.756(b), shall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment: <ul style="list-style-type: none"> <li>a. A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of <math>\pm 1</math> percent of the temperature being measured expressed in degrees Celsius or <math>\pm 0.5</math> degrees Celsius, whichever is greater.</li> <li>b. A device that records flow to or bypass of the control device. The Permittee shall either: <ul style="list-style-type: none"> <li>i. Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or</li> <li>ii. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.</li> </ul> </li> </ul>
3	12. The Permittee, as described in 40 CFR §60.756(c), shall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment: <ul style="list-style-type: none"> <li>a. A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame.</li> <li>b. A device that records flow to or bypass of the flare. The owner or operator shall either: <ul style="list-style-type: none"> <li>i. Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or</li> <li>ii. Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.</li> </ul> </li> </ul>
1, 2, and 3	13. The Permittee shall visually inspect the engine and flares in accordance with 40 CFR 60 Appendix A Method 22 on a weekly basis.
1, 2, and 3	14. The Permittee shall test/monitor the H <sub>2</sub> S concentration (ppmv) at the inlet of the Sulfa Treat air pollution control system at least once per week. The Permittee shall test/monitor the H <sub>2</sub> S concentration (ppmv) at the outlet of the Sulfa Treat air pollution control system at least five days per week except during weeks with a legal holiday. On these weeks, the Permittee shall test/monitor the H <sub>2</sub> S concentration at the outlet of the Sulfa Treat air pollution control system at least four days per week. MassDEP will consider changing the frequency of the testing/monitoring for H <sub>2</sub> S based upon a petition supporting a change in frequency. A written MassDEP approval will be required to change the frequency of testing/monitoring for H <sub>2</sub> S concentrations.
1, 2, and 3	15. The Permittee shall install, calibrate, and maintain landfill gas flow rate measuring devices that monitor continuously the LFG flow to each emission unit. The Permittee shall calibrate annually these gas flow rate measuring devices in accordance with the manufacturer's specifications. The Permittee shall determine the total amount of landfill gas flow to each emission unit on a daily basis.
1, 2, and 3	16. The Permittee shall monitor the concentration of methane in the LFG on a daily basis.

<b>Table 3</b>	
<b>EU</b>	<b>Monitoring and Testing Requirements</b>
1, 2, and 3	17. The Permittee shall compute monthly emissions (in lb/month) by multiplying the LFG flow rate for the calendar month (in scf) by the most recent determined higher heating value of the LFG (in Btu/scf) and then multiplying by the appropriate emission rate indicated in Table 2 of this Plan Approval or from the most recent stack testing results (in lb/MMBtu). To determine the 12-month rolling emissions (in TPY), the Permittee shall add the calculated monthly pollutant emissions (in lb/month) to the previous 11-months' pollutant emissions (in lb/month) and then convert to tons by dividing by 2000.
7	18. The Permittee shall determine the heating value, in Btu/scf, of the landfill gas on a quarterly basis.
7	19. The Permittee shall ensure that each wellhead has at least one sample port.
7	20. The Permittee, as described in 40 CFR §60.756(a), shall monitor the gauge pressure in the gas collection header at each individual well monthly.
7	21. The Permittee, as described in 40 CFR §60.756(a), shall monitor each individual well monthly for nitrogen or oxygen and for temperature. The Permittee shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55 °C (131 °F) and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent.
7	22. The Permittee shall monitor methane concentration, carbon dioxide concentration, and gas flow rate at each wellhead on a monthly basis and record this inspection.
7	23. The Permittee shall conduct the first sampling event within 45 calendar days of well installation.
7	<p>24. The Permittee, as described in 40 CFR §60.753(d) and 40 CFR §60.755(c), shall monitor the landfill surface methane concentration on a quarterly basis (in ppmvd). The Permittee shall use the sampling points, methodology, and protocols indicated therein. The Permittee shall conduct surface testing around the perimeter of the collection area, and along a pattern of that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation, cracks or seeps in the landfill cover.</p> <p>In addition, the Permittee shall conduct surface testing at the following locations:</p> <ul style="list-style-type: none"> <li>a. The border between capped and uncapped areas of the landfill;</li> <li>b. Areas where seeping or puddles or pools of water are visible on the surface of the landfill; and</li> <li>c. At the base (and at any other openings to the atmosphere) of gas collection wells and other structural components protruding from the landfill surface.</li> </ul> <p>This requirement applies to uncapped and capped areas of the Landfill that have active gas collection, as required by this Plan Approval, but excludes the active phase.</p>
7	25. The Permittee shall monitor the landfill surface methane concentration only on days that are free of measurable precipitation in Southbridge, when the barometric pressure is representative of average and on which there are no measured wind speeds above 12 miles per hour, as measured from the nearest representative meteorological station. If the landfill surface is covered in snow, the Permittee may make a written request for a delay in monitoring the landfill surface methane concentration.

<b>Table 3</b>	
<b>EU</b>	<b>Monitoring and Testing Requirements</b>
7	26. As described in 40 CFR §60.755(c)(5) and in accordance with 310 CMR 19.130(15), the Permittee shall develop and implement a program to monitor for landfill cover integrity and implement cover repairs as necessary on a monthly basis. The Permittee shall maintain records of all observations and subsequent landfill cover repairs.
7	27. The Permittee shall monitor the total volume of LFG collected on a monthly basis.
7	28. In accordance with 40 CFR §60.752(b)(1) and §60.754(a)(3)(i), the Permittee shall recalculate annually the NMOC mass emission rate using the equations specified in 40 CFR §60.754(a)(1)(i) or (a)(1)(ii) and the average NMOC concentration from the collected samples instead of the default value in the equation provided in 40 CFR §60.754 (a)(1).
7	29. In accordance with 40 CFR §60.754(a)(3), if the resulting NMOC mass emission rate is less than 50 mega-grams per year, the Permittee shall retest the site-specific NMOC concentration every 5 years using the methods specified in 40 CFR §60.754(a)(3). For any NMOC sampling, the Permittee shall submit a sampling protocol to MassDEP for review and written approval 30 days before testing and shall identify the appropriate EPA Reference Test Method.
Facility-wide	30. As described in 40 CFR §60.753, (c)(5) and 40 CFR §60.756 and in accordance with 310 CMR 19.117, the Permittee shall install, calibrate, maintain, and operate any LFG monitoring equipment or emission monitoring systems installed for the purpose of documenting compliance with this Plan Approval in sufficient manner to ensure continuous and accurate operations at all times.
Facility-wide	31. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12: Source Registration.
	32. The Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and Regulation 310 CMR 7.13.
	33. At least 30 days prior to emission testing, the Permittee shall submit to MassDEP for approval an emission pretest protocol. The Permittee shall conduct emission testing only upon receiving written approval from MassDEP.
Facility-wide	34. Within 45 days after emission testing, the Permittee shall submit to MassDEP a final emission test results report.

**Table 3 Key:**

EU = Emission Unit

Btu/scf = British thermal unit per standard cubic foot

CO = Carbon Monoxide

H<sub>2</sub>S = hydrogen sulfide

LFG = landfill gas

lb/month = pounds per month

lb/MMBtu = pounds per million British thermal unit

ppmv = parts per million volume

ppmvd = parts per million dry volume

NMOC = Non Methane Organic Compounds

NO<sub>x</sub> = Nitrogen Oxides

scf = standard cubic foot

TPY = tons per consecutive 12-month

°C = degrees Celsius

°F = degrees Fahrenheit

± = plus or minus

TMS = Temperature Monitoring System for the engine

<b>Table 4</b>	
<b>EU</b>	<b>Record Keeping Requirements</b>
1	1. The Permittee shall maintain on-site records of the heat input of LFG (Btu) fired in the engine for each month and for each twelve-month rolling period.
1	2. The Permittee shall keep a maintenance plan and schedule for the engine. The Permittee shall maintain on-site records of all conducted maintenance, malfunction(s), corrective actions, and downtime of the engine.
1	3. The Permittee shall maintain the records of all valid and invalid engine Temperature Monitoring System measurements, calibration, QA/QC, maintenance, malfunction, corrective action and downtime. Where applicable, the Permittee shall mark the records to show the time of both start-up and shutdown of the engine.
2	4. The Permittee shall keep a maintenance plan and schedule for the enclosed flare. The Permittee shall maintain on-site records of all conducted maintenance, alerts, malfunction(s), corrective actions, and downtime of the enclosed flare.
1, 2, and 3	5. The Permittee shall keep for the life of the control equipment, records for the data as described in 40 CFR §60.758 paragraphs (b)(1) through (b)(4) as measured during the initial performance test or compliance determination. These are listed below: <ul style="list-style-type: none"> <li>a. The maximum expected gas generation flow rate as calculated in 40 CFR §60.755(a)(1). The owner or operator may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Administrator;</li> <li>b. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR §60.759(a)(1);</li> <li>c. Engine and enclosed flare: The average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test and the percent reduction of NMOC determined as specified in 40 CFR §60.752(b)(2)(iii)(B) achieved by the control device; and</li> <li>d. Open flare: the flare type (i.e., steam-assisted, air-assisted, or non-assisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR §60.18; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.</li> </ul>
1, 2, and 3	6. The Permittee shall keep records of the control device vendor specifications until the control device is removed.
1, 2, and 3	7. The Permittee shall maintain records of LFG flow to the engine and to each flare so that the total volume of LFG fired by each emission unit will be available by date and time period and shall be summarized as daily and monthly totals.
1, 2, and 3	8. The Permittee shall maintain records of the hydrogen sulfide concentration measured at the inlet and outlet of the Sulfa Treat air pollution control system.
7	9. The Permittee shall maintain records of the annual NMOC mass emission rate, in mega-grams, and the results of site specific NMOC concentration sampling.

<b>Table 4</b>	
<b>EU</b>	<b>Record Keeping Requirements</b>
7	10. The Permittee shall keep, for at least 5 years, up-to-date, readily accessible, on-site records of the design capacity report which triggered 40 CFR §60.752(b), the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.
7	11. The Permittee shall maintain records of all surface monitoring events, methane concentrations that exceed 500 ppmvd, and corrective action(s). The Permittee shall record any reading of 500 ppmvd or more above background at any location as a monitored exceedance and any actions that were taken as described in 40 CFR §60.755(c)(4)(i) through (v).
7	12. The Permittee shall maintain records of the results of monitoring and repairing the landfill cover integrity.
7	13. The Permittee shall keep the following records for the life of the collection system: <ul style="list-style-type: none"> <li>a) up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.</li> <li>b) up-to-date, readily accessible records of the installation date and location of all newly installed collectors; and</li> <li>c) readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste, if applicable.</li> </ul>

**Table 4**

Table 4																	
EU	Record Keeping Requirements																
Facility-wide	<p>14. On a monthly basis, the Permittee shall calculate emissions for the Facility (in pounds per month and tons per consecutive 12-month period) for greenhouse gases, hydrogen sulfide, NMOC, and VOC as follows:</p> <ul style="list-style-type: none"><li>a. Emissions in pounds per month shall be determined by summing emissions from the combustion devices and emissions from uncollected landfill gas.</li><li>b. Uncollected landfill gas volume shall be computed from the measured LFG flow rate for the month to the combustion units and the estimated collection efficiency.</li><li>c. Individual pollutant emissions from uncollected landfill gas shall be estimated by multiplying the estimated flow rate of uncollected landfill gas by the appropriate pollutant concentration and using the appropriate soil oxidation factors from EPA guidance documents. The pollutant concentration shall be determined from the most recent test data which was obtained from a representative location. Specifically:<ul style="list-style-type: none"><li>i. Hydrogen sulfide volumetric concentration shall be measured prior to the sulfur treatment system;</li><li>ii. Methane volumetric concentration shall be measured at the header or other appropriate location;</li><li>iii. Carbon dioxide shall be measured at the header, or assumed to be 100% minus the other measured gases (methane, etc), by volume;</li><li>iv. NMOC concentration shall be based on the most recent sampling data results. Sampling methodology must conform to EPA Reference Test Methods (currently Method 25C);</li><li>v. VOC concentration shall be assumed equal to 98% of NMOC unless test data is submitted and approved by MassDEP which indicates otherwise; and</li><li>vi. Greenhouse gases include, but are not limited to: methane and carbon dioxide and are reported in carbon dioxide equivalents. Methane shall be considered to have a global warming potential of 25, (e.g. one pound of methane is equivalent to 25 pounds of carbon dioxide).</li></ul></li></ul>																
Facility-wide	<p>15. <span style="float: right;">The</span> Permittee shall estimate the collection efficiency for each landfill cell by the listed collection efficiency for each EPA GHG Reporting Cover Type Designations pursuant to 40 CFR Part 98, Subpart HH, Table HH-3 as presented below:</p> <table><tr><th>Cover Type</th><th>Description</th><th>% Collection Efficiency</th></tr><tr><td>A2</td><td>Daily Soil Cover without gas collection</td><td>0</td></tr><tr><td>A3</td><td>Daily Soil Cover; Active Area with gas collection</td><td>60</td></tr><tr><td>A4</td><td>Intermediate Soil Cover; Inactive Area with gas collection</td><td>75</td></tr><tr><td>A5</td><td>Geomembrane Cap, Liner, or Final Cap</td><td>95</td></tr></table> <p>The collection efficiency estimates shall be consistent with the methods required to estimate greenhouse gas emissions for annual reporting to MassDEP and EPA.</p>		Cover Type	Description	% Collection Efficiency	A2	Daily Soil Cover without gas collection	0	A3	Daily Soil Cover; Active Area with gas collection	60	A4	Intermediate Soil Cover; Inactive Area with gas collection	75	A5	Geomembrane Cap, Liner, or Final Cap	95
Cover Type	Description	% Collection Efficiency															
A2	Daily Soil Cover without gas collection	0															
A3	Daily Soil Cover; Active Area with gas collection	60															
A4	Intermediate Soil Cover; Inactive Area with gas collection	75															
A5	Geomembrane Cap, Liner, or Final Cap	95															

<b>Table 4</b>	
<b>EU</b>	<b>Record Keeping Requirements</b>
Facility-wide	16. The Permittee shall maintain records of the monitoring and testing as required by Table 3.
Facility-wide	<p>17. The Permittee shall prepare and maintain sufficient records to demonstrate compliance with all Operation, Production, and Emission Limits set forth in this Plan Approval. All records shall be maintained up-to-date such that year-to-date information is readily available for MassDEP examination. Such records shall include, but are not limited to:</p> <ul style="list-style-type: none"> <li>a. A list of wells not under active collection and the reason why;</li> <li>b. Records of monthly wellhead monitoring for oxygen or nitrogen, for temperature, and for gauge pressure,</li> <li>c. Records of monthly wellhead monitoring for methane, carbon dioxide, and gas flow rate;</li> <li>d. Records of hydrogen sulfide concentration at the inlet and outlet of the sulfur removal system;</li> <li>e. Records of hourly engine exhaust temperatures;</li> <li>f. Records of total monthly LFG collected</li> <li>g. Records of run time and kW produced by the engine;</li> <li>h. Records of heating value of landfill gas (Btu/scf), as determined quarterly;</li> <li>i. Records of LFG flow to the engine and to each flare on a daily, monthly, and consecutive 12-month rolling basis;</li> <li>j. Records of the visual inspections of the control devices;</li> <li>k. Records of quarterly survey for landfill surface methane concentration; and</li> <li>l. Records of monthly landfill cover integrity inspections and any subsequent landfill cover repairs taken.</li> </ul>
Facility-wide	18. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EU(s) and PCD(s) approved herein on-site. The Plan Approval is valid until one of the following conditions occur: the EU(s) and/or PCD(s) equipment is dismantled or removed from the Facility; the Facility notifies the MassDEP that the Plan Approval is no longer valid; the EU(s) and/or PCD(s) equipment is substantially reconstructed or altered and subject to 310 CMR 7.02; the Plan Approval is superseded by another Plan Approval, or MassDEP revokes the Plan Approval in accordance with 310 CMR 7.02 (3)(k).
Facility-wide	19. The Permittee shall maintain a record of routine maintenance activities performed on the approved EU(s), PCD(s), and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	20. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s), PCD(s), and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time the EU(s), PCD(s) and monitoring equipment returned to compliant operation.
Facility-wide	21. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12: Source Registration.
	22. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years or for the life of the control equipment and collection system as in accordance with 40 CFR 60.758, whichever is longer.

<b>Table 4</b>	
<b>EU</b>	<b>Record Keeping Requirements</b>
Facility-wide	23. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

**Table 4 Key:**

Btu = British thermal unit	NMOC = Non methane organic compounds
Btu/scf = British thermal unit per standard cubic foot	PCD = Pollution Control Device
CFR = Code of Federal Regulations	ppmv = parts per million weight
EU = Emission Unit	ppmvd = parts per million dry weight
EPA = Environmental Protection Agency	SOMP = Standard Operating and Maintenance Procedure
kW = kilowatt	VOC = Volatile organic compounds
LFG = Landfill Gas	USEPA = United States Environmental Protection Agency
QA/QC = quality assurance/quality control	% = percent

<b>Table 5</b>	
<b>EU</b>	<b>Reporting Requirements</b>
1	1. The Permittee shall notify MassDEP in writing whenever an engine is removed from the Facility and whenever an engine is returned to the Facility. The notification shall include the make, model, and serial number of the engine, date(s) of removal and reinstallation, and the reason (s) for the removal of the engine. For any engine that is installed at the Facility, the Permittee shall also report the date the last compliance test was performed on the engine and the number of months and the hours of operation that have occurred since that last test. The Permittee shall notify MassDEP 15 days prior to the engine being removed or reinstalled.
2	2. The Permittee shall maintain the previously installed Auto Dialer to alert site personnel of any alarm messages generated by the enclosed Flare. The Permittee shall field program the Auto Dialer with at least three and up to 8 different pre-programmed phone numbers and keep the telephone numbers up to date.
2	3. Within 90 days from the issuance of this Plan Approval, the Permittee shall develop and submit for written approval by MassDEP a standard operating procedure for the enclosed Flare Auto Dialer.
7	4. In accordance with 40 CFR §60.757(b), the Permittee shall submit an NMOC emission rate report to MassDEP annually. The NMOC emission rate report shall include all the data, calculations, sample reports and measurements used to estimate the annual emissions.



<b>Table 5</b>	
<b>EU</b>	<b>Reporting Requirements</b>
7	5. The Permittee shall notify, in writing, the Central Regional Office of MassDEP, BAW Permit Chief within 14 business days of the date that waste is first placed in a newly opened Phase VII cell. This notification shall include an estimate of the capacity of the cell and the expected period of operation.
7	6. If landfill gas is detected in perimeter wells at 25% of the LEL or more, the Permittee shall notify the Central Regional Office of MassDEP, BAW Solid Waste Chief and the Air Permit Chief by telephone, email, or fax: 508-792-7621, as soon as possible, but no later than two (2) business days after landfill gas is detected in perimeter wells.
Facility-wide	7. The Permittee shall submit a semi-annual status report to Central Regional Office of MassDEP, BAW Permit Chief. The status report shall include: <ul style="list-style-type: none"> <li>a. identification of the cell(s) currently accepting waste;</li> <li>b. monthly H<sub>2</sub>S Removal System monitoring logs (daily and monthly entries) for the sulfur treatment system;</li> <li>c. summary report of monthly wellhead sampling with all exceedances identified, specifically date, well number, sample results, and actions taken;</li> <li>d. list of recently installed wells with dates of installation and locations for each new well;</li> <li>e. updated as-built gas collection and control plan;</li> <li>f. surface monitoring reports and any corrective actions taken;</li> <li>g. landfill gas flow rate to each combustion device on a daily, monthly, and on a consecutive 12-month rolling basis;</li> <li>h. listing of any events in which any portion of the LFG Collection and Treatment System did not operate or operated at a reduced capacity, the approximate length of downtime, the reason for such event(s), and the corrective actions taken or planned;</li> <li>i. amount of electricity generated, used on site, and sold to the electric grid on a monthly basis; and</li> <li>j. NMOC sample results, if any.</li> </ul>
Facility-wide	8. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
Facility-wide	9. In accordance with 310 CMR 19.133(1)(c), the Permittee shall notify the Central Regional Office of MassDEP, BAW Permit Chief and Solid Waste Chief of the existence of damaged or destroyed environmental control systems or monitoring devices and the extent of the damage. The operator shall submit such notification, in writing, within 14 days of discovery and shall provide a schedule for repair or replacement for approval by MassDEP. Repair or replacement of monitoring devices shall be completed prior to the next scheduled sampling round.
Facility-wide	10. The Permittee shall notify the Central Regional Office of MassDEP, BAW Solid Waste Chief and the Air Permit Chief by telephone, email, or fax: 508-792-7621, as soon as possible if there is loss of electrical power at the Facility lasting greater 4 hours.
Facility-wide	11. The Permittee shall notify the Central Regional Office of MassDEP, BAW Solid Waste Chief and the Permit Chief by telephone, email, or fax: 508-792-7621, as soon as possible if the collection or control system becomes inoperable and the Permittee has shut down the gas mover system and closed all valves in the collection and control system contributing to venting of the gas to the atmosphere as described in 40 CFR §60.753(e).

<b>Table 5</b>	
<b>EU</b>	<b>Reporting Requirements</b>
Facility-wide	12. The Permittee shall notify the Central Regional Office of MassDEP, BAW Permit Chief by telephone: 508-767-2845, email: <a href="mailto:CERO.Air@massmail.state.ma.us">CERO.Air@massmail.state.ma.us</a> , or fax : 508-792-7621, as soon as possible, but no later than three (3) business day after discovery of an exceedance(s) of Table 2 limits. A written report shall be submitted to the BAW Permit Chief at MassDEP within ten (10) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
Facility-wide	13. The Permittee shall report annually to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. This reporting will include all HAPs emitted at the Facility, including uncollected LFG and emissions from EUs 1-6 in accordance with 310 CMR 7.12(3)(a). The Permittee shall note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require Plan Approval.
Facility-wide	14. Upon MassDEP request, any records required by the applicable requirements identified in this Plan Approval, or the emissions of any air contaminant from the Facility, shall be submitted to MassDEP within 30 days of the request by MassDEP, or within a longer time period if approved in writing by MassDEP. Said response shall be transmitted on paper, or electronically at the discretion of MassDEP.

**Table 5 Key:**

BAW = Bureau of Air and Waste

EU = Emission Unit

CFR = Code of Federal Regulations

H<sub>2</sub>S = Hydrogen Sulfide

LEL = Lower explosive limit

LFG = Landfill gas

NMOC = Non methane organic compound

% = percent

#### 4. **SPECIAL TERMS AND CONDITIONS**

- A. The Permittee is subject to, and shall comply with, the Special Terms and Conditions as contained in Table 6 below:

<b>Table 6</b>	
<b>EU</b>	<b>Special Terms and Conditions</b>
1	1. The Permittee shall document any one (1) hour average exhaust temperature record that falls below the compliance temperature for the engine. Following the any one (1) hour period in which the temperature falls below the compliance temperature for the engine, the Permittee shall immediately perform an inspection of the applicable systems and take expeditious and appropriate corrective actions to minimize the period during which the source is operating outside the established limit. The Permittee shall document all corrective actions.
1	2. The Permittee shall construct and operate the engine in a manner that prevents noise that causes or contributes to a condition of air pollution. Such construction and operation shall include the following: a. The engine shall have an exhaust silencer in good operating condition; b. The engine shall be operated in a building which consists of an appropriate foundation, four walls and a roof. The walls and roof shall be made of solid material such as wood, metal, brick or concrete; c. All doors on the access and exit passageways shall be kept closed at all times that they are not in use; and d. The walls, roof, doors, and windows and any ventilation openings for the building shall be acoustically treated to prevent noise emissions.
1	3. The Permittee shall operate the engine in a manner consistent with good air pollution control practice for minimizing emissions by, at a minimum, parametric monitoring.
2	4. The Permittee shall set and maintain the operating temperature set point for the enclosed flare in the range of 1600° to 1700°F.
2	5. The Permittee shall install on the enclosed flare a propane pilot system for flame ignition and have a flame arrestor to prevent the flame from traveling back into the gas collection system. An ultraviolet flame detector or equivalent shall be used to detect the presence of a flame, both for the pilot system and the main flame.
2	6. The Permittee shall operate the enclosed flare in accordance with the manufacturer's specifications which includes, but is not limited to, using the appropriate air intake settings for the LFG flow rate so that combustion takes place within the shroud of the emission unit.
2 and 3	7. The Permittee shall operate the flares with a flame present at all times.

<b>Table 6</b>	
<b>EU</b>	<b>Special Terms and Conditions</b>
1, 2, and 3	8. The Permittee shall burn LFG primarily in the engine generator set and in the enclosed flare. At no time shall the LFG flow to the engine exceed 625 scfm, or as determined by the latest performance test, as a daily average rate. At no time shall the LFG flow to the enclosed flare exceed 2,200 scfm as a daily average rate. The open flare shall burn LFG <i>only</i> when the enclosed flare is temporarily malfunctioning or when the flow rate of LFG to the enclosed flare falls below its lower operating limit of 370 scfm. At no time shall the LFG flow to the open flare exceed 1350 scfm as a daily average rate.
1, 2, and 3	9. The LFG Treatment System shall be manufactured by Sulfa Treat or equivalent and designed to handle at least 2200 scfm of LFG.
1, 2, and 3	10. The Permittee shall ensure that the Sulfa Treat reduces the H <sub>2</sub> S concentration of the LFG to a calendar monthly average of 200 ppmv with a maximum daily limit of 500 ppmv at 50 percent methane. The Sulfa Treat shall reduce LFG H <sub>2</sub> S concentration to a monthly average of 200 ppmv in LFG at 50 percent methane prior to combustion in the engine and flares.
1, 2, and 3	11. The Permittee shall replace the media in the Sulfa Treat vessels as needed to maintain the calendar monthly average of 200 ppmv H <sub>2</sub> S. The contaminated regenerative media shall be disposed of in compliance with all applicable laws, regulations, approvals and permits.
1, 2, and 3	12. The Permittee may remove the Sulfa Treat H <sub>2</sub> S air pollution control equipment and/or retire it in place when the concentration of H <sub>2</sub> S in the LFG samples for 12 consecutive months is 200 ppmv or less.
1, 2, and 3	13. The Permittee shall operate the engine and the flares in a manner consistent with the manufacturers' specified operating and maintenance procedures at all times.
4, 5, and 6	14. The Permittee shall maintain the emergency back-up generators on-site at all times dedicated to gas collection and treatment operations in the event of a loss of power from the electrical grid that would otherwise prevent the use of the engine, flares, and ancillary equipment. The Permittee shall ensure that the emergency generators comply with the requirements of 40 CFR 60 Subpart IIII, 40 CFR 63 Subpart ZZZZ and/or 310 CMR 7.26 as applicable.
7	15. The Permittee shall install the LFG collection systems at a sufficient density throughout all gas producing areas in accordance with the specifications for active collection systems described in 40 CFR §60.759 (a).

**Table 6**

EU	Special Terms and Conditions
7	<p>16. The Permittee shall design, install, operate, and maintain an active landfill gas collection system that is in compliance with this Plan Approval and as described in 40 CFR §60.752(b)(2)(ii). The active landfill gas collection system shall:</p> <ul style="list-style-type: none"> <li>a. handle the maximum expected gas flow rate only from the entire areas encompassed by Phases I - VII of the landfill;</li> <li>b. collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of 18 months or less;</li> <li>c. collect gas at a sufficient extraction rate; and</li> <li>d. prevent off-site migration of subsurface gas.</li> </ul>
7	<p>17. The Permittee shall install vertical wells and/or horizontal collectors as soon as practicable but no later than 18 months after initial waste placement in each area, cell, or group of cells in Phase VII of the Landfill.</p>
7	<p>18. The Permittee shall ensure that active LFG collection commences from each area, cell, or group of cells in Phase VII of the Landfill within 30 days of either of the following occurrences:</p> <ul style="list-style-type: none"> <li>a. Landfill gas quality becoming sustainable at greater than 40% methane or</li> <li>b. The initial solid waste having been in place for a period of 18 months.</li> </ul> <p>If more than one condition applies, then the condition that requires the earliest installation of wells and collection of gas shall apply.</p>
7	<p>19. Installation of, or lack of, a final cover or final cap on a cell shall not prevent compliance with the routine monitoring, recordkeeping and reporting requirements.</p>
7	<p>20. The Permittee shall operate the LFG collection system so that the methane concentration is less than 500 ppmvd above background at the surface of the Landfill. This requirement applies to uncapped and capped areas of the Landfill that have active gas collection.</p>
7	<p>21. For any reading of 500 ppmvd or more above background at any location on the surface of the Landfill, the Permittee shall record the reading(s) as a monitored exceedance(s) and shall take the actions specified in paragraphs 40 CFR §60.755(c)(4) (i) through (v). As long as the specified actions are taken, the exceedance is not a violation of this Plan Approval.</p>
7	<p>22. The Permittee shall direct the landfill gas collected from Phases I - VII to an approved emission control device(s) at all times. The Permittee shall direct <i>only</i> the landfill gas collected from Phases I - VII to the approved control devices named herein this Plan Approval.</p>
7	<p>23. The Permittee shall develop and implement standard operating procedures (SOP) for when there is a loss of electrical power to the Facility. The SOP shall describe any differences in procedures, if any, for when the power loss is for less than or equal to 4 hours and for when the power loss is greater than 4 hours. The Permittee shall include notification requirements to local and state agencies in the SOP.</p>

<b>Table 6</b>	
<b>EU</b>	<b>Special Terms and Conditions</b>
7	24. The Permittee shall operate the gas collection and treatment system so that all collected gases are vented to the control system designed and operated as described in 40 CFR §60.752(b)(2)(iii). In the event the collection or control system is inoperable, as described in 40 CFR §60.753(e), the Permittee shall shut down the gas mover system and close within 1 hour all valves in the collection and control system contributing to venting of the gas to the atmosphere and notify MassDEP in accordance with the requirements in Table 5.
7	25. As described in 40 CFR §60.753(b), the Permittee shall operate the collection system with negative pressure at each wellhead except under the following conditions: <ul style="list-style-type: none"> <li>a. A fire or increased well temperature. The Permittee shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as described in 40 CFR §60.757(f)(1);</li> <li>b. Use of a geo-membrane or synthetic cover. The Permittee shall develop acceptable pressure limits in the design plan; or</li> <li>c. A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by MassDEP.</li> </ul>
7	26. If monitoring demonstrates that the operational requirements for pressure, temperature, and nitrogen or oxygen at each wellhead are not met, the Permittee shall take corrective action as described in 40 CFR §60.755(a)(3) and (5) or 40 CFR §60.755(c). If corrective actions are taken as described in 40 CFR §60.755, the monitored exceedance is not a violation of this Plan Approval. An alternative time line for correcting an exceedance may be submitted to MassDEP for approval.
7	27. As described in 40 CFR §60.753(c), the Permittee may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. The Permittee shall submit to MassDEP for approval a higher operating value (HOV) demonstration that shows supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.
7	28. Landfill gas collection wells may be closed or deactivated for safety reasons, i.e. monitoring shows elevated oxygen levels (> 5%) or elevated temperature (> 131 °F). If wells are closed or deactivated for safety reasons (high temperature or oxygen concentration), the Permittee shall re-monitor every 14 calendar days (starting with the deactivation date) for oxygen and temperature. Once the oxygen concentration is less than 5% and the temperature is less than 131 degrees F, the Permittee shall reactivate the collection well and resume monthly monitoring.
Facility Wide	29. This Plan Approval Transmittal No. X264977 supersedes and replaces Air Quality Plan Approvals Transmittal Nos. X262787, W068501, and its amendments Nos. W068501-A1 and W068501-A2. The underlying application materials contained within Transmittal Nos. X262787 and W068501 and its amendments remain applicable where not superseded by this Plan Approval.

**Table 6 Key:**

TMS = engine Temperature Monitoring System  
EU = Emission Unit

ppmv = parts per million volume  
ppmvd = parts per million dry volume

HOV = Higher operating value

H<sub>2</sub>S = Hydrogen Sulfide

LFG = landfill gas

NMOC = Non Methane Organic Compounds

scfm = standard cubic feet per minute

SOP = Standard Operating Procedure

°F = Degrees Fahrenheit

> = greater than

% = Percent

- B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including, but not limited to, rain protection devices known as “shanty caps” and “egg beaters.”
- C. The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7, for the Emission Units that are regulated by this Plan Approval:

<b>Table 7</b>				
<b>EU</b>	<b>Stack Height Above Ground (feet)</b>	<b>Stack Inside Exit Dimensions (feet)</b>	<b>Stack Gas Exit Velocity Range (feet per second)</b>	<b>Stack Gas Exit Temperature Range (°F)</b>
1	22	1.0	144 - 265	898 - 984
2	45	9.0	5 - 35	1400 - 2000
3	28	0.67	50 - 82	1400 - 2000

**Table 7 Key:**

EU = Emission Unit

°F = Degree Fahrenheit

**5. GENERAL CONDITIONS**

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of the Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 and 310 CMR 4.00.

- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of the Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and/or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local laws or regulations now or in the future.
- F. The Application is incorporated into this Plan Approval by reference. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when MassDEP determines that it is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

## **6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT**

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

## **7. REQUEST FOR ADJUDICATORY HEARING**

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.



Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) and a completed Adjudicatory Hearing Fee Transmittal Form, a copy of which is attached hereto, must be mailed to:

Commonwealth of Massachusetts  
Department of Environmental Protection  
P.O. Box 4062  
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Enclosed is a stamped approved copy of the application submittal.

Should you have any questions concerning this Plan Approval, please contact me by telephone at 508-767-2845, or in writing at the letterhead address.

*This final document copy is being provided to you electronically by the  
Department of Environmental Protection. A signed copy of this document  
is on file at the DEP office listed on the letterhead.*

---

Roseanna E. Stanley  
Permit Chief  
Bureau of Air and Waste

Enclosures:

- Adjudicatory Hearing Fee Transmittal Form
- Stamped Plan Application

ecc: Southbridge Board of Health  
Southbridge Fire Department  
Charlton Board of Health  
Town of Southbridge, 41 Elm Street, Southbridge, MA 01550 Attn: Town Manager  
MassDEP/Boston - Yi Tian  
Sanborn Head & Associates